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CARRIERS OF THE KIF6 719ARG ALLELE APPEAR TO HAVE A HIGHER LP(A) CONCENTRATION AND PREDOMINANTLY SMALL LDL PARTICLES DESPITE SIMILAR TRADITIONAL LIPOPROTEIN LEVELS

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
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Session Title: Genetic Associations with Cardiovascular Phenotypes and Endophenotypes
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Authors: *Juan J. Rivera, Khurram Nasir, Xi Zhu, Robert Superko, Roger S. Blumenthal, Arthur S. Agatston, Johns Hopkins Ciccarone Center for the Prevention of Heart Disease, Baltimore, MD, University of Miami, Miami, FL*

Background: Studies have suggested that carriers of the 719Arg allele of KIF6 have an increased risk of cardiovascular disease as well as an improved response to statins as compared to non-carriers. The association of the KIF6 polymorphism and LDL subclass distribution has not been reported.

Methods: We studied the distribution of lipoproteins according to KIF6 polymorphism in 218 apparently healthy non diabetic individuals (64% men, mean age: 61±14 years). KIF6 Trp719Arg genotypes were determined using an allele-specific real-time polymerase chain reaction genotyping assay. LDL subclass distribution was assessed using gradient gel electrophoresis and Lp(a) by immunoasar.

Results: In our study, 64% (n=142) and 36% (n=76) participants were carriers and non-carriers of KIF6 719Arg, respectively. No significant differences in baseline traditional risk factors were noted between KIF6 groups. However, carriers of 719Arg had a significantly higher Lp(a) level as well as a higher prevalence of predominantly intermediate (AB) and small LDL particles (B).

Conclusions: In this cohort of asymptomatic non- diabetic individuals, carriers of 719Arg had a higher concentration of LP(a) and higher likelihood of having smaller and dense LDL particles. This is the first study to report a possible association of the KIF6 polymorphism with atherogenic small LDL and if substantiated, may help explain the association of the KIF6 polymorphism with CHD risk.

Association between KIF6 719 Arg status and Risk Factors			
	Carriers Kif6 719Arg allele (n=142)	Non-carriers KIF6 Arg allele (n=76)	P value
LDL-C (mg/dl)	96 ± 35	99 ± 40	0.6
HDL-C (mg/dl)	54 ± 15	56 ± 15	0.24
TG (mg/dl)	137 ± 86	124 ± 77	0.24
Apo B (mg/dl)	83 ± 23	79 ± 23	0.20
Lp(a) (mg/dl)	35 ± 46	22 ± 25	0.02
LDL subclasses Large pattern A Intermediate pattern AB Small dense pattern B	 50% 29% 21%	 72% 14% 14%	0.01